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CLAIM AMENDMENTS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1   1. (Currently Amended) A method of providing reliability to an interconnect
2   fabric for communication among a set of nodes, the method comprising:
3   partitioning ports associated with each node into a first set of ports and
4   a second set of ports;
5   forming a primary interconnect fabric among the first set of ports in
6   response to a set of flow requirements; and
7   forming a backup interconnect fabric among the second set of ports
8   wherein the backup interconnect fabric carries a portion of communications
9   carried by the primary fabric so as to protect against occurrence of a failure in
10   the primary fabric, said forming the backup interconnect fabric comprising
11   determining feasibility of merging candidate flow sets based on a sum of flow
12   requirements in the candidate flow sets that are interrupted by a single failure
13   in the primary interconnect fabric.

1   2. (Currently amended) The method according to claim 1, wherein said
2   forming the backup interconnect fabric further comprises generating
3   arrangements of flow sets in response to the flow requirements, determining
4   feasibility of merging pairs of candidate flow sets and merging a pair of the
5   flow sets.

1   3. (Original) The method according to claim 2, wherein said merging the pair
2   of the flow sets alleviates at least one port violation with respect to the second
3   set of ports.

4. (Cancelled)

5. (Cancelled)

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1 6. (Original) The method according to claim 1, wherein said set of nodes
2 includes source nodes and terminal nodes.

1 7. (Original) The method according to claim 1, wherein each node is
2 associated with at least two ports.

1 8. (Original) The method according to claim 1, said partitioning further
2 comprising partitioning the ports associated with each node into a number of
3 additional sets of ports.

1 9. (Currently amended) The method according to claim [[5]]8, further
2 comprising forming additional interconnect fabrics among the additional sets
3 of ports.

1 10. (Original) The method according to claim 1, wherein the second set of
2 ports includes one port for each node.

11. (Cancelled)

12. (Cancelled)

13. (Cancelled)

1   14. (Currently Amended)   ~~The method according to claim 10~~A method of
2   providing reliability to an interconnect fabric for communication among a set
3   of nodes, the method comprising:
4   identifying one or more failure modes in a primary interconnect fabric,
5   wherein the primary interconnect fabric carries communications among the set
6   of nodes via a first set of ports of the nodes; and
7   forming a backup interconnect fabric among a second set of ports of
8   the nodes for carrying a portion of the communications of the primary fabric
9   so as to protect against occurrence of any single one of the failure modes of
10 the primary fabric, wherein said forming the backup interconnect fabric
11 comprises determining feasibility of merging candidate flow sets based on a

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12   sum of flow requirements in the candidate flow sets in the primary

13   interconnect fabric that are interrupted by occurrence of a single failure mode

14   in the primary interconnect fabric.

1   15. (Currently Amended)   ~~The method according to claim 10~~A method of

2   providing reliability to an interconnect fabric for communication among a set

3   of nodes, the method comprising:

4   identifying one or more failure modes in a primary interconnect fabric,

5   wherein the primary interconnect fabric carries communications among the set

6   of nodes via a first set of ports of the nodes; and

7   forming a backup interconnect fabric among a second set of ports of

8   the nodes for carrying a portion of the communications of the primary fabric

9   so as to protect against occurrence of any single one of the failure modes of

10   the primary fabric, wherein said forming the backup interconnect fabric

11   comprises determining feasibility of merging candidate flow sets based on a

12   highest sum of flow requirements in the candidate flow sets in the primary

13   interconnect fabric that are interrupted by occurrence of different failure

14   modes in the primary interconnect fabric.

16. (Cancelled)

17. (Cancelled)

18. (Cancelled)

19. (Cancelled)

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23. (Cancelled)

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24. (Cancelled)

25. (Cancelled)

26. (Cancelled)

27. (Cancelled)

28. (Cancelled)

29. (Cancelled)

30. (Cancelled)

1   31. (New) A method of providing reliability to an interconnect fabric for
2   communication among a set of nodes, the method comprising:
3   partitioning ports associated with each node into a first set of ports and
4   a second set of ports;
5   forming a primary interconnect fabric among the first set of ports in
6   response to a set of flow requirements; and
7   forming a backup interconnect fabric among the second set of ports
8   wherein the backup interconnect fabric carries a portion of communications
9   carried by the primary fabric so as to protect against occurrence of a failure in
10   the primary fabric, wherein said forming the backup interconnect fabric
11   comprises determining feasibility based on a highest sum of flow requirements
12   in the candidate flow sets that are interrupted by different failures in the
13   primary interconnect fabric.

1   32. (New) The method according to claim 31, wherein said forming the
2   backup interconnect fabric further comprises generating arrangements of flow
3   sets in response to the flow requirements, determining feasibility of merging
4   pairs of candidate flow sets and merging a pair of the flow sets.

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1   33. (New) The method according to claim 32, wherein said merging the pair
2   of the flow sets alleviates at least one port violation with respect to the second
3   set of ports.

1   34. (New) The method according to claim 31, wherein said set of nodes
2   includes source nodes and terminal nodes.

1   35. (New) The method according to claim 31, wherein each node is
2   associated with at least two ports.

1   36. (New) The method according to claim 1, said partitioning further
2   comprising partitioning the ports associated with each node into a number of
3   additional sets of ports.

1   37. (New) The method according to claim 36, further comprising forming
2   additional interconnect fabrics among the additional sets of ports.

1   38. (New) The method according to claim 31, wherein the second set of ports
2   includes one port for each node.

1   39. (New) The method according to claim 14, wherein said forming the
2   backup interconnect fabric comprises generating arrangements of flow sets in
3   response to the flow requirements, determining feasibility of merging pairs of
4   candidate flow sets and merging a pair of the flow sets.

1   40. (New) The method according to claim 39, wherein said merging the pair
2   of the flow sets alleviates at least one port violation with respect to the second
3   set of ports.

1   41. (New) The method according to claim 14, wherein said set of nodes
2   includes source nodes and terminal nodes.

1   42. (New) The method according to claim 14, wherein each node is
2   associated with at least two ports.

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1   43. (New) The method according to claim 14, said partitioning further
2   comprising partitioning the ports associated with each node into a number of
3   additional sets of ports.

1   44. (New) The method according to claim 43, further comprising forming
2   additional interconnect fabrics among the additional sets of ports.

1   45. (New) The method according to claim 14, wherein the second set of ports
2   includes one port for each node.

1   46. (New) The method according to claim 15, wherein said forming the
2   backup interconnect fabric comprises generating arrangements of flow sets in
3   response to the flow requirements, determining feasibility of merging pairs of
4   candidate flow sets and merging a pair of the flow sets.

1   47. (New) The method according to claim 46, wherein said merging the pair
2   of the flow sets alleviates at least one port violation with respect to the second
3   set of ports.

1   48. (New) The method according to claim 15, wherein said set of nodes
2   includes source nodes and terminal nodes.

1   49. (New) The method according to claim 15, wherein each node is
2   associated with at least two ports.

1   50. (New) The method according to claim 15, said partitioning further
2   comprising partitioning the ports associated with each node into a number of
3   additional sets of ports.

1   51. (New) The method according to claim 50, further comprising forming
2   additional interconnect fabrics among the additional sets of ports.

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1 52. (New) The method according to claim 15, wherein the second set of ports
2 includes one port for each node.

1 53. (New) A system for generating an interconnect fabric design comprising:
2 means for partitioning ports associated with each node into a first set of
3 ports and a second set of ports;
4 means for generating a design for a primary interconnect fabric among
5 the first set of ports in response to a set of flow requirements; and
6 means for generating a design for a backup interconnect fabric among
7 the second set of ports wherein the backup interconnect fabric carries a portion
8 of communications carried by the primary interconnect fabric so as to protect
9 against occurrence of a failure in the primary interconnect fabric, wherein the
10 means for generating the design for the backup interconnect fabric determines
11 feasibility of merging candidate flow sets based on a sum of flow requirements
12 in the candidate flow sets that are interrupted by a single failure in the primary
13 interconnect fabric.

1 54. (New) A system for generating an interconnect fabric design comprising:
2 means for partitioning ports associated with each node into a first set of
3 ports and a second set of ports;
4 means for generating a design for a primary interconnect fabric among
5 the first set of ports in response to a set of flow requirements; and
6 means for generating a design for a backup interconnect fabric among
7 the second set of ports wherein the backup interconnect fabric carries a portion
8 of communications carried by the primary interconnect fabric so as to protect
9 against occurrence of a failure in the primary interconnect fabric, wherein the
10 means for generating the design for the backup interconnect fabric determines
11 feasibility based on a highest sum of flow requirements in the candidate flow
12 sets that are interrupted by different failures in the primary interconnect fabric.

1 55. (New) A system for generating an interconnect fabric design comprising:
2 means for identifying one or more failure modes in a primary
3 interconnect fabric, wherein the primary interconnect fabric carries

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4   communications among the set of nodes via a first set of ports of the nodes;

5   and

6   means for generating a design for a backup interconnect fabric among

7   a second set of ports of the nodes for carrying a portion of the communications

8   of the primary interconnect fabric so as to protect against occurrence of any

9   single one of the failure modes of the primary interconnect fabric, wherein the

10   means for generating the design for the backup interconnect fabric determines

11   feasibility of merging candidate flow sets based on a sum of flow requirements

12   in the candidate flow sets in the primary interconnect fabric that are

13   interrupted by occurrence of a single failure mode in the primary interconnect

14   fabric.

1   56. (New) A system for generating an interconnect fabric design comprising:

2   means for identifying one or more failure modes in a primary

3   interconnect fabric, wherein the primary interconnect fabric carries

4   communications among the set of nodes via a first set of ports of the nodes;

5   and

6   means for generating a design for a backup interconnect fabric among

7   a second set of ports of the nodes for carrying a portion of the communications

8   of the primary interconnect fabric so as to protect against occurrence of any

9   single one of the failure modes of the primary interconnect fabric, wherein the

10   means for generating the design for the backup interconnect fabric determines

11   feasibility of merging candidate flow sets based on a highest sum of flow

12   requirements in the candidate flow sets in the primary interconnect fabric that

13   are interrupted by occurrence of different failure modes in the primary

14   interconnect fabric.